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IS 3731 (1985): teak squares [CED 9: Timber and Timber Stores]



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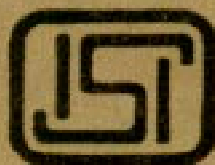
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IS : 3731 - 1985

Indian Standard
SPECIFICATION FOR
TEAK SQUARES
(*First Revision*)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR TEAK SQUARES

(First Revision)

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Indian Standard
SPECIFICATION FOR
TEAK SQUARES
(First Revision)

0. F O R E W O R D

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 28 February 1985, after the draft finalized by the Timber Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The need for a standard on grading rules for teak squares for purposes of internal trade and replacing several individual specifications now existing between various buyers and sellers particularly in the government departments themselves, has been felt for quite sometime.

0.2.1 No arbitrary rules for the inspection of 'teak squares' can be maintained with complete satisfaction as the variation from any given rule will be far too numerous and as such the judgement of the grader should command the maximum degree of acceptance by everybody. Teak squares being mostly intended for reconversion into smaller sizes must be judged by the general quality of the wood and the probable loss due to visible defects under normal methods of conversion.

0.2.2 In view of these conditions, this standard was first published in 1966 to lay down a uniform set of grading rules for teak squares. Based on the experience gained as a result of usage of this standard, this revision has been taken up, wherein the extent of permissible defects in teak squares have been revised.

0.3 While formulating these rules the experience based on 'Rules for the grading of teak squares' of Forest Research Institute coupled with the recent trends in the international fields have been duly considered.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard covers the requirements of various grades of teak squares based on defects.

2. TERMINOLOGY

2.0 For the purpose of this standard, the definitions given in IS : 707-1976* and the following shall apply.

2.1 Equivalent Defect — Any defect not listed in this standard but which can be rated the same as any other defect mentioned in the standard and which causes equal degrade in further utilization of teak squares.

2.2 Teak Squares — A piece of teak timber formed by slabbing a teak log on four sides with a rectangular cross-section of not less than 20 cm side and length not less than 2 m. The sides of the cross-section are generally equal to each other within 10 percent.

2.3 Consignment — One lot of 100 teak squares or less, offered for inspection at any particular time for a particular grade.

2.4 Holes — Cavities caused by the insects, birds and mechanical means and expressed by their diameter.

2.4.1 Large Holes — Hole above 12 mm in diameter.

2.4.2 Small Holes — Hole 12 mm or less but more than 2 mm in diameter.

2.4.3 Pin Holes — Hole 2 mm or less in diameter.

2.5 Defect — An abnormality or irregularity which lowers the value of teak square by decreasing its out-turn in future conversion.

2.6 Units of Defect — Unit of a defect is a quantitative representation of the approximate degrade of the utilizable material for each defect. A sum of units of various defects gives an estimate of the total degrade due to all defects present simultaneously in the material under consideration.

3. GRADES

3.1 For all squares up to 5 m in length any consignment shall be graded as below depending on cumulative value of the defects.

3.1.1 Grade 1 — No single square shall contain more than 2.0 units of defects and the average for the whole consignment shall be not more than 0.75 units of defects.

*Glossary of terms applicable to timber technology and utilization (*second revision*).

3.1.2 Grade 2 — No single square shall contain more than 4.0 units of defects and the average for the whole consignment shall not be more than 1.5 units of defects.

3.1.3 Grade 3 — No single square shall contain 6.0 units of defects and the average for the whole consignment shall not be more than 3 units of defects.

3.2 For squares more than 5 m in length the above limits shall be derived by the following equation:

$$\text{Permissible number of defects in squares more than 5 m in length} = \frac{L}{5} \times \text{Permissible defect value according to grade}$$

where L = length of squares in m.

3.2.1 The value derived from 3.2 shall not exceed twice the number of units of defects as permitted for each grade.

4. GENERAL REQUIREMENTS

4.1 Teak squares shall be either sawn or hewn to a reasonable evenness.

4.2 All pieces shall have fairly straight and parallel sides with the planes of end-sections fairly perpendicular to the planes of the side surfaces.

4.3 All squares shall be of good sound wood and free from defects other than those permitted under 6.

4.4 The grading of individual squares shall be based on cumulative effect of defects as obtained by the addition of units of defect and shall conform to 3.

4.5 Plugging or covering of the visible defects shall not be permitted in any form.

4.6 All pieces shall be air-seasoned to a moisture content not exceeding 20 percent up to a depth of 15 mm from any portion of the surface excluding 30 cm from each end. Determination of moisture content shall be done by the methods prescribed in IS : 11215-1985*. In case of dispute, distillation method shall be regarded as standard.

5. DIMENSIONS AND THEIR MEASUREMENTS

5.1 All cross-sectional measurements shall be made at mid length of the teak square correct to 0.5 cm.

5.2 Length shall be measured from end to end correct to the nearest lower 0.05 m at the corners of the ends, the shortest length parallel to longitudinal edges shall be taken as the length of the teak square.

*Methods for determination of moisture content of timber and timber products.

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5.3 The volume of any piece shall be computed in m³ to the nearest third decimal place.

6. PERMISSIBLE DEFECTS AND THEIR EVALUATION

6.0 The evaluation of defects mentioned below and their method of measurement shall generally conform to IS : 3364 (Part 2)-1976* and in addition shall be governed by the following clauses.

6.1 Curvature — Curvature more than 20 mm in 2 m length shall not be accepted. Curvatures up to 20 mm in 2 m shall be admitted in all grades subject to the provision that curved squares shall not exceed 5 percent in any consignment.

6.2 Taper — Taper up to 10 mm in every metre (both faces) shall be admitted in all grades. Steeper taper shall not be accepted.

6.3 Wane — Wane up to a total of 10 percent of width on any face shall not be considered a defect; wane in excess of 10 percent shall not be accepted. Wane shall be measured at its deepest part on each face.

6.4 Knots

6.4.1 Knot shall not be more than one-fourth of the face on which it occurs.

6.4.2 Knots shall not be so distributed as to result in an estimated loss of more than 25 percent in further conversion under normal conditions of saw milling.

6.4.3 The units of defect shall be evaluated as per IS : 3364 (Part 2)-1976*. For ready reference the units for some dimensions are given below:

One knot up to 50 mm	0.01 units
One knot over 50 mm and up to 100 mm	0.04 units

6.4.4 Decayed knots count twice as sound knot of the same dimensions.

6.5 Holes

6.5.1 Large Holes — Large holes shall not be permitted unless agreed to between the purchaser and the supplier.

6.5.2 Small Holes — Not more than 5 holes shall be permitted for every square metre of all the four surfaces put together. They shall also be not so distributed as to result in a loss of more than 25 percent in further conversion under normal conditions of saw milling.

*Methods of measurement and evaluation of defects in timber: Part 2 Converted timber (first revision).

6.5.3 The units of defect shall be evaluated by the diameter of the holes as per IS : 3364 (Part 2)-1976*. For ready reference the units for some sizes and number are given below:

One hole up to 5 mm	0.01 units
One hole above 5 mm and up to 10 mm	0.03 units

6.5.4 Pin holes other than those due to live powder post beetles shall be permitted.

6.6 Shakes

6.6.1 All type of shakes up to 80 mm in length shall be permitted.

6.6.2 The units of defect shall be evaluated as per IS : 3364 (Part 2)-1976*. For ready reference the units for some shakes are given below:

<i>Length of the Shake mm</i>	<i>Width of the Shake mm</i>	<i>Units of Defects</i>
20	10	0.10
40	15	0.20
80	25	0.66

6.6.3 For more than one shake the units of defect shall be added together and in case of star shake the values of the largest shake is multiplied by half the number of shakes in the star.

6.7 Checks and Splits

6.7.1 Checks less than 50 mm in length and 2 mm in width shall be permitted provided they are not so numerous as to effect the out turn of the material on conversion.

6.7.2 Checks up to 200 mm in length and more than 2 mm in width shall be evaluated as shake as per IS : 3364 (Part 2)-1976*.

6.7.3 Checks more than 200 mm shall not be permitted.

6.7.4 Splits up to 250 mm shall be permitted and evaluated as per IS : 3364 (Part 2)-1976*.

6.8 Other Defects

6.8.1 Any defect not listed above but which will not debar any piece from its expected utility can be considered as equivalent defect to any of the above for purposes of evaluation depending on its size, appearance, location and distribution.

*Methods of measurement and evaluation defects in timber: Part 2 Converted timber (first revision).

6.8.2 Defect values for those which cannot be considered as equivalent defects and for such number and sizes of the defects not listed above shall be obtained from IS : 3364 (Part 2)-1976*.

7. MARKING

7.1 All squares shall be marked or punched suitably at the ends to indicate the following:

- a) Suppliers' identification mark by abbreviated initials,
- b) Grade 1 by a square,
- c) Grade 2 by a triangle, and
- d) Grade 3 by one star or cross '*' or 'x'.

7.1.1 Each teak square may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8. GUIDING PRINCIPLES FOR INSPECTION

8.1 Guiding principles for inspection given in IS : 6534-1971† shall be followed and a record of each square inspected shall be kept in the pro forma given in Table 1.

*Methods of measurement and evaluation of defects in timber: Part 2 Converted timber (*first revision*).

†Guiding principles for grading and inspection of timber.

TABLE 1 PRO FORMA FOR GRADING OF TEAK SQUARES

(Clause 8.1)

Reference of Consignment:

Name of the Inspecting Organization:

Number of Teak Squares:

Represented by:

SL No.	IDENTIFICA- TION MARK ON TEAK SQUARE	DIMENSIONS			GENERAL DEFECTS			DEFECTS FOR WHICH VALUES ARE TO BE CALCULATED				REMARKS ON OTHER DEFECTS, IF ANY	TOTAL UNITS OF DEFECT	RE- MARKS
		Length	Breadth	Width	Curva- ture	Taper	Wane	Knots	Holes	Shakes	Checks and Splits			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

6

Grade under which the consignment is placed:

Grand Total:

Average:

Seal of inspecting authority.

Signature of Inspector:

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